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WE CLAIM:

1. A heterologous fusion protein comprising a hyperglycosylated G-CSF analog fused to a polypeptide selected from the group consisting of
      d) human albumin;
      e) human albumin analogs; and
      f) fragments of human albumin.

2. The heterologous fusion protein of claim 1, wherein the hyperglycosylated G-CSF analog is fused to the polypeptide via a peptide linker.

3. The heterologous fusion protein of the Claim 2 wherein the peptide linker is selected from the group consisting of:
      c) a glycine rich peptide;
      d) a peptide having the sequence [Gly-Gly-Gly-Gly-Ser]$_n$ where n is 1, 2, 3, 4, or 5; and
      e) a peptide having the sequence [Gly-Gly-Gly-Gly-Ser]$_3$.

4. The heterologous fusion protein of Claims 1, 2, or 3 wherein the hyperglycosylated G-CSF analog comprises the amino acid sequence of the formula I: [SEQ ID NO: 1]

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1                   5                   10                  15
Thr Pro Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys
            20                  25                  30
Xaa Leu Glu Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln
        35                  40                  45
Glu Lys Leu Cys Xaa Xaa Xaa Lys Leu Cys His Pro Glu Glu Leu Val
    50                  55                  60
Leu Leu Gly His Ser Leu Gly Ile Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65                  70                  75                      80
Xaa Xaa Xaa Xaa Xaa Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser
            85                  90                  95
Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Xaa Xaa Xaa Ser
            100                 105                 110
Xaa Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp
        115                 120                 125
Phe Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro
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    130                      135                    140
Ala Leu Gln Pro Xaa Xaa Xaa Ala Met Pro Ala Phe Xaa Xaa Xaa Phe
145                      150                    155                160
Gln Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Aln Ser Phe
                 165                    170
Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro      (I)
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wherein:
Xaa at position 17 is Cys, Ala, Leu, Ser, or Glu;
Xaa at position 37 is Ala or Asn;
Xaa at position 38 is Thr, or any other amino acid except Pro;
Xaa at position 39 is Tyr, Thr, or Ser;
Xaa at position 57 is Pro or Val;
Xaa at position 58 is Trp or Asn;
Xaa at position 59 is Ala or any other amino acid except Pro;
Xaa at position 60 is Pro, Thr, Asn, or Ser,
Xaa at position 61 is Leu, or any other amino acid except Pro;
Xaa at position 62 is Ser or Thr;
Xaa at position 63 is Ser or Asn;
Xaa at position 64 is Cys or any other amino acid except Pro;
Xaa at position 65 is Pro, Ser, or Thr;
Xaa at position 66 is Ser or Thr;
Xaa at position 67 is Gln or Asn;
Xaa at position 68 is Ala or any other amino acid except Pro;
Xaa at position 69 is Leu, Thr, or Ser
Xaa at position 93 is Glu or Asn
Xaa at position 94 is Gly or any other amino acid except Pro;
Xaa at position 95 is Ile, Asn, Ser, or Thr;
Xaa at position 97 is Pro, Ser, Thr, or Asn;
Xaa at position 133 is Thr or Asn;
Xaa at position 134 is Gln or any other amino acid except Pro;
Xaa at position 135 is Gly, Ser, or Thr
Xaa at position 141 is Ala or Asn;
Xaa at position 142 is Ser or any other amino acid except Pro; and
Xaa at position 143 is Ala, Ser, or Thr;

and wherein:
Xaa at positions 37, 38, and 39 constitute region 1;
Xaa at positions 58, 59, and 60 constitute region 2;
Xaa at positions 59, 60, and 61 constitute region 3;

Xaa at positions 60, 61, and 62 constitute region 4;

Xaa at positions 61, 62, and 63 constitute region 5;

Xaa at positions 62, 63, and 64 constitute region 6;

Xaa at positions 63, 64, and 65 constitute region 7;

Xaa at positions 64, 65, and 66 constitute region 8;

Xaa at positions 67, 68, and 69 constitute region 9;

Xaa at positions 93, 94, and 95 constitute region 10;

Xaa at positions 94, 95, and Ser at position 96
        constitute region 11;

Xaa at positions 95, and 97, and Ser at position 96
        constitute region 12;

Xaa at positions 133, 134, and 135 constitute
        region 13;

Xaa at positions 141, 142, and 143 constitute
        region 14;

and provided that at least one of regions 1 through 14 comprises the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

5.   The heterologous fusion protein of Claim 4 wherein any two regions of regions 1 through 14 comprise the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

6.   The heterologous fusion protein of Claim 4 wherein any three regions of regions 1 through 14 comprise the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

7.   The heterologous fusion protein of Claim 4 wherein any four regions of regions 1 through 14 comprise the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

8.   The heterologous fusion protein of Claim 4 wherein the hyperglycosylated G-CSF analog is selected from the group consisting of:

a) G-CSF[A37N,Y39T]

b) G-CSF[P57V,W58N,P60T]

c) G-CSF[P60N,S62T]

d) G-CSF[S63N,P65T]

e) G-CSF[Q67N,L69T]

f) G-CSF[E93N,I95T]

g) G-CSF[T133N,G135T]

h) G-CSF[A141N,A143T]

i) G-CSF[A37N,Y39T,P57V,W58N,P60T]

j) G-CSF[A37N,Y39T,P60N,S62T]

k) G-CSF[A37N,Y39T,S63N,P65T]

l) G-CSF[A37N,Y39T,Q67N,L69T]

m) G-CSF[A37N,Y39T,E93N,I95T]

n) G-CSF[A37N,Y39T,T133N,G135T]

o) G-CSF[A37N,Y39T,A141N,A143T]

      p) G-CSF[A37N,Y39T,P57V,W58N,P60T,S63N,P65T]

q) G-CSF[A37N,Y39T,P57V,W58N,P60T,Q67N,L69T]

r) G-CSF[A37N,Y39T,S63N,P65T,E93N,I95T].

9.   The heterologous fusion protein of claim 8, wherein the hyperglycosylated G-CSF analog is G-CSF[A37N, Y39T,P57V,W58N,P60T,Q67N,L69T].

10.   The heterologous fusion protein of claim 8, wherein the hyperglycosylated G-CSF analog is G-CSF[A37N,Y39T,S63N,P65T,E93N,I95T].

11.   A heterologous fusion protein which is the product of the expression in a host cell of an exogenous DNA sequence which comprises a DNA sequence encoding a heterologous fusion protein of any one of Claims 1 through 11.

12.   An isolated nucleic acid sequence, comprising a

polynucleotide encoding a heterologous fusion protein of any
one of Claims 1 through 11.

13. An isolated nucleic acid sequence, comprising a
polynucleotide which comprises a DNA sequence selected from
the group consisting of:

a) SEQ ID NO:2
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTT TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT GCC ACC TAC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA CGG TGG ATG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC AAC CAG ACC GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TTG GTC TGG CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG

b) SEQ ID NO:3
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTT TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT GCC ACC TAC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA CGG TGG ATG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC

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GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC AAC TCT ACC TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG TTG AGA TGG AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG
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c) SEQ ID NO:4
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ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG
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d) SEQ ID NO:5
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ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC
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GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT GCC ACC TAC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA CGG TGG ATG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT AAC ACT AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA TTG GAC TCC TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG

e) SEQ ID NO:6
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT GCC ACC TAC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA CGG TGG ATG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AAT TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TTA ACG

ACC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
TGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG
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CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG AAC GGG TCG GGG

f) SEQ ID NO:7
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT GCC ACC TAC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA CGG TGG ATG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC GTT AAC GCT ACC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG CAA TTG CGA TGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG AAC GGG TCG GGG

g) SEQ ID NO:8
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT GCC ACC TAC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA CGG TGG ATG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC AAC GCC ACC CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG TTG CGG TGG GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC

CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG

h) SEQ ID NO:9
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT GCC ACC TAC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA CGG TGG ATG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG AAC GGG ACC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC TTG CCC TGG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG

i) SEQ ID NO:10
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

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GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC AAC CAG ACC GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TTG GTC TGG CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG
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j) SEQ ID NO:11
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ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC AAC TCT ACC TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG TTG AGA TGG AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG
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CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG AAA CGG GTC GGG
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k)   SEQ ID NO:12
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ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC GTT AAC GCT ACC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG CAA TTG CGA TGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG AAA CGG GTC GGG
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l) SEQ ID NO:13
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ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC


GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC AAC GCC ACC CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG TTG CGG TGG GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG
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CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG
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m)   SEQ ID NO:14
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ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC ·TGG GCT CCC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TCG ACG

CCC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

AAC GGT ACC GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
TTG CCA TGG CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG
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n)   SEQ ID NO:15
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ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC
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CTG CTC GGA CAC TCT CTG GGC ATC GTT AAC GCT ACC CTG AGC AGC TGC
GAC GAG CCT GTG ACA GAC CCG TAG CAA TTG CGA TGG GAC TCG TCG ACG

CCC AGC AAC GCC ACC CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
GGG TCG TTG CGG TGG GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG GAA GGG ATC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC CTT CCC TAG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG

o)  SEQ ID NO:16
ACC CCC CTG GGC CCT GCC AGC TCC CTG CCC CAG AGC TTC CTG CTC AAG
TGG GGG GAC CCG GGA CGG TCG AGG GAC GGG GTC TCG AAG GAC GAG TTC

GCC TTA GAG CAA GTG AGG AAG ATC CAG GGC GAT GGC GCA GCG CTC CAG
CGG AAT CTC GTT CAC TCC TTC TAG GTC CCG CTA CCG CGT CGC GAG GTC

GAG AAG CTG TGT AAC ACC ACC AAG CTG TGC CAC CCC GAG GAG CTG GTG
CTC TTC GAC ACA TTG TGG TGG TTC GAC ACG GTG GGG CTC CTC GAC CAC

CTG CTC GGA CAC TCT CTG GGC ATC CCC TGG GCT CCC CTG AGC AAT TGC
GAC GAG CCT GTG ACA GAC CCG TAG GGG ACC CGA GGG GAC TCG TTA ACG

ACC AGC CAG GCC CTG CAG CTG GCA GGC TGC TTG AGC CAA CTC CAT AGC
TGG TCG GTC CGG GAC GTC GAC CGT CCG ACG AAC TCG GTT GAG GTA TCG

GGC CTT TTC CTC TAC CAG GGG CTC CTG CAG GCC CTG AAC GGG ACC TCC
CCG GAA AAG GAG ATG GTC CCC GAG GAC GTC CGG GAC TTG CCC TGG AGG

CCC GAG TTG GGT CCC ACC TTG GAC ACA CTG CAG CTG GAC GTC GCC GAC
GGG CTC AAC CCA GGG TGG AAC CTG TGT GAC GTC GAC CTG CAG CGG CTG

TTT GCC ACC ACC ATC TGG CAG CAG ATG GAA GAA CTG GGA ATG GCC CCT
AAA CGG TGG TGG TAG ACC GTC GTC TAC CTT CTT GAC CCT TAC CGG GGA

GCC CTG CAG CCC ACC CAG GGT GCC ATG CCG GCC TTC GCC TCT GCT TTC
CGG GAC GTC GGG TGG GTC CCA CGG TAC GGC CGG AAG CGG AGA CGA AAG

CAG CGC CGG GCA GGA GGG GTC CTG GTT GCC TCC CAT CTG CAG AGC TTC
GTC GCG GCC CGT CCT CCC CAG GAC CAA CGG AGG GTA GAC GTC TCG AAG

CTG GAG GTG TCG TAC CGC GTC TTA AGG CAC CTT GCC CAG CCC
GAC CTC CAC AGC ATG GCG CAG AAT TCC GTG GAA CGG GTC GGG,
```

fused to a DNA encoding a protein selected from the group consisting of:

    a) human albumin,

    b) human albumin analog; and

    c) fragments of human albumin.

14. The heterologous fusion protein of any one of Claims 1 through 11 wherein the polypeptide is human albumin.

15. The heterologous fusion protein of Claim 12, wherein the second polypeptide has the sequence of SEQ ID NO: 35.

16. The heterologous fusion protein of any one of Claims 1 through 11 wherein the second polypeptide is an N-terminal fragment of albumin.

17. A method for increasing neutrophil levels in a mammal comprising the administration of a therapeutically effective amount of the heterologous fusion protein of any one of Claims 1 through 11, 14 and 15.

18. The use of the heterologous fusion protein as claimed in any one of Claims 1 through 11, 14 and 15 for the manufacture of a medicament for the treatment of patients with insufficient circulating neutrophil levels.

19. Use of a heterologous fusion protein of any one of Claims 1 through 11, 14, and 15 as a medicament.

20. Use of a heterologous fusion protein of any one of Claims 1 through 11, 14, and 15 for the treatment of patients with insufficient circulating neutrophil levels.

21. A pharmaceutical formulation adapted for the treatment of patients with insufficient neutrophil levels comprising a

heterologous fusion protein of any one of Claims 1 through
11, 14, and 15.

22.   A heterologous fusion protein comprising a
hyperglycosylated G-CSF analog fused to a polypeptide
selected from the group consisting of
     a) the Fc portion of an immunoglobulin;
     b) an analog of the Fc portion of an immunoglobulin;
       and
     c) fragments of the Fc portion of an immunoglobulin.

23.   The heterologous fusion protein of Claim 22, wherein
the hyperglycosylated G-CSF analog is fused to the
polypeptide via a peptide linker.

24.   The heterologous fusion protein of the Claim 23 wherein
the peptide linker is selected from the group consisting of:
     a) a glycine rich peptide;
     b) a peptide having the sequence [Gly-Gly-Gly-Gly-Ser]$_n$
       where n is 1, 2, 3, 4, or 5; and
     c) a peptide having the sequence [Gly-Gly-Gly-Gly-Ser]$_3$.

23.   The heterologous fusion protein of Claims 22, 23 or 24,
wherein the hyperglycosylated G-CSF analog comprises the
amino acid sequence of the formula I: [SEQ ID NO: 1]

```
1                   5                   10                  15
Thr Pro Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys
                20                  25                  30
Xaa Leu Glu Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln
        35                  40                  45
Glu Lys Leu Cys Xaa Xaa Xaa Lys Leu Cys His Pro Glu Glu Leu Val
    50                  55                  60
Leu Leu Gly His Ser Leu Gly Ile Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65                  70                  75                  80
Xaa Xaa Xaa Xaa Xaa Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser
                85                  90                  95
Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Xaa Xaa Xaa Ser
            100                 105                 110
Xaa Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp
        115                 120                 125
Phe Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro
        130                 135                 140
Ala Leu Gln Pro Xaa Xaa Xaa Ala Met Pro Ala Phe Xaa Xaa Xaa Phe
145                 150                 155                 160
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Gln Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Aln Ser Phe
                 165                     170
Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro      (I)
```

wherein:
Xaa at position 17 is Cys, Ala, Leu, Ser, or Glu;
Xaa at position 37 is Ala or Asn;
Xaa at position 38 is Thr, or any other amino acid except
Pro;
Xaa at position 39 is Tyr, Thr, or Ser;
Xaa at position 57 is Pro or Val;
Xaa at position 58 is Trp or Asn;
Xaa at position 59 is Ala or any other amino acid except
Pro;
Xaa at position 60 is Pro, Thr, Asn, or Ser,
Xaa at position 61 is Leu, or any other amino acid except
Pro;
Xaa at position 62 is Ser or Thr;
Xaa at position 63 is Ser or Asn;
Xaa at position 64 is Cys or any other amino acid except
Pro;
Xaa at position 65 is Pro, Ser, or Thr;
Xaa at position 66 is Ser or Thr;
Xaa at position 67 is Gln or Asn;
Xaa at position 68 is Ala or any other amino acid except
Pro;
Xaa at position 69 is Leu, Thr, or Ser
Xaa at position 93 is Glu or Asn
Xaa at position 94 is Gly or any other amino acid except
Pro;
Xaa at position 95 is Ile, Asn, Ser, or Thr;
Xaa at position 97 is Pro, Ser, Thr, or Asn;
Xaa at position 133 is Thr or Asn;
Xaa at position 134 is Gln or any other amino acid except
Pro;
Xaa at position 135 is Gly, Ser, or Thr
Xaa at position 141 is Ala or Asn;
Xaa at position 142 is Ser or any other amino acid except
Pro; and
Xaa at position 143 is Ala, Ser, or Thr;

        and wherein:
        Xaa at positions 37, 38, and 39 constitute region 1;
        Xaa at positions 58, 59, and 60 constitute region 2;
        Xaa at positions 59, 60, and 61 constitute region 3;
        Xaa at positions 60, 61, and 62 constitute region 4;

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Xaa at positions 61, 62, and 63 constitute region 5;
Xaa at positions 62, 63, and 64 constitute region 6;
Xaa at positions 63, 64, and 65 constitute region 7;
Xaa at positions 64, 65, and 66 constitute region 8;
Xaa at positions 67, 68, and 69 constitute region 9;
Xaa at positions 93, 94, and 95 constitute region 10;
Xaa at positions 94, 95, and Ser at position 96
        constitute region 11;
Xaa at positions 95, and 97, and Ser at position 96
        constitute region 12;
Xaa at positions 133, 134, and 135 constitute
        region 13;
Xaa at positions 141, 142, and 143 constitute
        region 14;

and provided that at least one of regions 1 through 14 comprises the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

26.   The heterologous fusion protein of Claim 25 wherein any two regions of regions 1 through 14 comprise the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

27.   The heterologous fusion protein of Claim 25 wherein any three regions of regions 1 through 14 comprise the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

28.   The heterologous fusion protein of Claim 25 wherein any four regions of regions 1 through 14 comprise the sequence Asn Xaa1 Xaa2 wherein Xaa1 is any amino acid except Pro and Xaa2 is Ser or Thr.

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29. The heterologous fusion protein of Claim 25 wherein the
hyperglycosylated G-CSF analog is selected from the group
consisting of:
a) G-CSF[A37N,Y39T]
b) G-CSF[P57V,W58N,P60T]
c) G-CSF[P60N,S62T]
d) G-CSF[S63N,P65T]
e) G-CSF[Q67N,L69T]
f) G-CSF[E93N,I95T]
g) G-CSF[T133N,G135T]
h) G-CSF[A141N,A143T]
i) G-CSF[A37N,Y39T,P57V,W58N,P60T]
j) G-CSF[A37N,Y39T,P60N,S62T]
k) G-CSF[A37N,Y39T,S63N,P65T]
l) G-CSF[A37N,Y39T,Q67N,L69T]
m) G-CSF[A37N,Y39T,E93N,I95T]
n) G-CSF[A37N,Y39T,T133N,G135T]
o) G-CSF[A37N,Y39T,A141N,A143T]
p) G-CSF[A37N,Y39T,P57V,W58N,P60T,S63N,P65T]
q) G-CSF[A37N,Y39T,P57V,W58N,P60T,Q67N,L69T]
r) G-CSF[A37N,Y39T,S63N,P65T,E93N,I95T].

30. The heterologous fusion protein of Claim 29 wherein the
hyperglycosylated G-CSF analog is G-
CSF[A37N,Y39T,P57V,W58N,P60T,Q67N,L69T].

31. The heterologous fusion protein of Claim 29 wherein the
hyperglycosylated G-CSF analog is G-
CSF[A37N,Y39T,S63N,P65T,E93N,I95T].

32. The heterologous fusion protein of any one of Claims 22
through 31 wherein the second polypeptide is the Fc portion
of an Ig selected from the group consisting of: IgG1, IgG2,
IgG3, IgG4, IgE, IgA, IgD, or IgM.

33.   The heterologous fusion protein of any one of Claims 22
through 32 wherein the second polypeptide is the Fc portion
of an Ig selected from the group consisting of: IgG1, IgG2,
IgG3, and IgG4.

34.   The heterologous fusion protein of Claim 33 wherein the
second polypeptide is the Fc portion of an IgG1
immunoglobulin.

35.   The heterologous fusion protein of Claim 33 wherein the
second polypeptide is the Fc portion of an IgG4
immunoglobulin.

36.   The heterologous fusion protein of Claims 22 through 35
wherein the IgG is human.

37.   The heterologous fusion protein of any one of Claims 22
through 36 wherein the Fc portion comprises the hinge, CH2,
and CH3 domains.

38.   The heterologous fusion protein of Claim 34 wherein the
polypeptide has the sequence of SEQ ID NO: 33.

39.   The heterologous fusion protein of Claim 34, wherein
the polypeptide has the following nucleic acid sequence:

```
tccaccaagggcccatcggtcttcccgctagcgccctgctccaggagcacctccgagagc
acagccgccctgggctgcctgg
tcaaggactacttccccgaaccggtgacggtgtcgtggaactcaggcgccctgaccagcg
gcgtgcacaccttcccggctgtc
ctacagtcctcaggactctactccctcagcagcgtggtgaccgtgccctccagcagcttg
ggcacgaagacctacacctgcaac
gtagatcacaagcccagcaacaccaaggtggacaagagagttgagtccaaatatggtccc
ccatgcccaccctgcccagca
cctgagttcctggggggaccatcagtcttcctgttccccccaaaacccaaggacactctc
atgatctcccggacccctgaggtcac
gtgcgtggtggtggacgtgagccaggaagaccccgaggtccagttcaactggtacgtgga
tggcgtggaggtgcataatgcca
agacaaagccgcgggaggagcagttcaacagcacgtaccgtgtggtcagcgtcctcaccg
tcctgcaccaggactggctgaa
cggcaaggagtacaagtgcaaggtctccaacaaaggcctcccgtcctccatcgagaaaac
catctccaaagccaaagggca
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gccccgagagccacaggtgtacaccctgcccccatcccaggaggagatgaccaagaacca
ggtcagcctgacctgcctggtc
aaaggcttctaccccagcgacatcgccgtggagtgggagagcaatgggcagccggagaac
aactacaagaccacgcctccc
gtgctggactccgacggctccttcttcctctacagcaggctaaccgtggacaagagcagg
tggcaggaggggaatgtcttctcatgc

tccgtgatgcatgaggctctgcacaaccactacacacagaagagcctctccctgtctctg

ggtaaatga.

40.   A polynucleotide encoding a heterologous fusion protein
of any one of Claims 1 through 389.

41.   A vector comprising the polynucleotide of Claim 40.

42.   A host cell comprising the vector of Claim 41.

43.   A host cell expressing at least one heterologous fusion
protein of any one of Claims 1 through 39.

44.   The host cell of Claim 43 wherein said host cell is a
CHO cell.

45.   A process for producing a heterologous fusion protein
comprising the steps of transcribing and translating a
polynucleotide of Claim 40 under conditions wherein the
heterologous fusion protein is expressed in detectable
amounts.

46.   A method for increasing neutrophil levels in a
mammal comprising the administration of a therapeutically
effective amount of the heterologous fusion protein of any
one of Claims 27 through 36.

47.   The use of the heterologous fusion protein as claimed
in any one of Claims 22 through 29 for the manufacture of a
medicament for the treatment of patients with insufficient
circulating neutrophil levels.

48.   Use of a heterologous fusion protein of any one of
Claims 22 through 29 as a medicament.

49.   Use of a heterologous fusion protein of any one of
Claims 22 through 29 for the treatment of patients with
insufficient circulating neutrophil levels.

50.   A pharmaceutical formulation adapted for the treatment
of patients with insufficient neutrophil levels comprising a
heterologous fusion protein of any one of Claims 22 through
29.

51.   A heterologous fusion protein as hereinbefore described
with reference to any one of the Examples.